Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Joe Bell, VCP/CAS Section, Remediation Division **Date:** July 15, 2009

From: Vickie Reat, Technical Support Section, Remediation Division

Subject: Patrick Bayou Superfund Site – Deer Park, Texas
June 15, 2009 Patrick Bayou Sediment Mixing-Zone Layer Study
Prepared by Anchor QEA

Pursuant to your request, I have performed a cursory review of the referenced document. My comments are detailed below.

1. The introduction states that a secondary objective of this study was to estimate net sedimentation rates in Patrick Bayou through analysis of radioisotope core data, and that this information will be used for further calibration and validation of the sediment transport model under development. I did not perform a focused review of this aspect of the report. The JDG should be aware that Mr. Charles Stone of the TCEQ may provide comments on this facet of the report as supporting materials for the sediment transport model that he is reviewing.

2. Regarding the depth of the mixing-zone layer, I seem to recall that a previous evaluation (not necessarily this mixing zone study) was going to include sediment profile imaging. If this did occur, how well do the mixing-zone layer estimations in this study correlate with the sediment images?

3. The report generally concludes that the mixing-zone layer thickness is less than 5 centimeters in several areas, and is less than 10 centimeters in all areas evaluated. As a result of this analysis, I understand that future sediment sampling will target the mixing zone layer. As such, the JDG will propose to sample the top 10 centimeters of sediment in future sediment sampling efforts. Generally I am not opposed to this approach as it appears to be conservative, particularly where the biotic zone extends to depths less than 10 centimeters.

   I have one cautionary note regarding the use of the 10 centimeter sample depth if the JDG intends to analyze these sediment samples for acid volatile sulfide/simultaneously extracted metals (AVS/SEM), as a means to predict the potential biological availability of metals found in sediments. In our view, this line of evidence would reflect a high level of uncertainty since most benthic invertebrates tend to concentrate in the oxidized sediments where occurrence of sulfides is not favored.